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10/557,758	11/17/2005	Gregory L. Branch	110120.402	1471

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THOMAS LOOP  
P.O. BOX 21466  
SEATTLE, WA 98111

EXAMINER

KUHNS, ALLAN R

ART UNIT PAPER NUMBER

1732

DATE MAILED: 10/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/557,758

Applicant(s)

BRANCH ET AL.

Examiner

Allan Kuhns

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-29 is/are pending in the application.  
4a) Of the above claim(s) 27 and 29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-21, 25, 26 and 28 is/are rejected.
- 7) ☒ Claim(s) 22-24 is/are objected to.
- 8) ☒ Claim(s) 1-29 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

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1.Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-3, 5-26 and 28, drawn to a process for making a shaped article.

Group II, claim(s) 27 and 29, drawn to a shaped article.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The special technical feature of Group II is a shaped article formed from a sheet or roll of thermoplastic material which is shown by Kumar et al. (5,684,055) to lack novelty or inventive step and does not make a contribution over the prior art. It is submitted that the use of a percentage of previously processed thermoplastic material does not, in and of itself, change the structure of the shaped article. Note MPEP 2113 with regard to treatment of product-by-process claims.

2.During a telephone conversation with Thomas Loop on October 23, 2006 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-3, 5-26 and 28. Affirmation of this election must be made by applicant in replying to this Office action. Claims 27 and 29 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

3.Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

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remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

4. Claims 22-24 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 22 does not further limit the claims because claim 16 requires that the thermoplastic material consist essentially of PET and claim 17 requires that the plasticizing gas is carbon dioxide.

5. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This claim is confusing because the initial clauses require the exposing of raw polymeric material to plasticizing gas while a later clause in this claim refers to "the unexposed polymeric material". Clarification is required.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 12, 15-21, 25 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar et al. (5,684,055) in view of Grancio et al. (4,386,188).

Kumar et al. disclose or suggest the basic claimed process for making a shaped article of manufacture from a sheet or roll of a thermoplastic material including (1) pressurizing

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the sheet or roll of the thermoplastic material with a plasticizing gas (it is submitted that the pressurizing gas of Kumar et al. inherently has the plasticizing effect) under a selected pressure and period of time to yield a reversibly plasticized thermoplastic material, the plasticized thermoplastic material being impregnated with the plasticizing gas, (2) depressurizing the plasticized thermoplastic material to thereby desorb some of the gas from the plasticized thermoplastic material, and (3) forming the plasticized thermoplastic material into the shaped article of manufacture. Kumar et al. at least suggest that the step of forming occurs before the impregnated plasticizing gas falls below about 0.5% by weight of the plasticized thermoplastic material by reporting at column 6, lines 1 and 2 that even the finished article's specific gravity is 0.3 versus 1.3 for solid PET. Kumar et al. do not teach the aspect of mixing virgin material with at least 5% of previously processed thermoplastic material, but such is taught by Grancio et al. at column 3, lines 57-64 and column 10, lines 3 and 4. It would have been obvious to one of ordinary skill in the art to incorporate this aspect taught by Grancio et al. into the method of Kumar et al. in order to conserve raw material.

Kumar et al. teach the use of PET (column 6, line 1), as in claim 16, and the use of carbon dioxide (column 5, line 46), as in claim 17. Forming of articles having dimensions within the range of claim 18 is well known and would have been obvious to one of ordinary skill in the art in order to form a shallow container, for example. It is submitted that saturating the polymer with gas, as taught by Kumar et al., results in a concentration within the range of claim 19. Kumar et al. teach or suggest forming microcells, as in claim 20, and returning the material to "normal pressure" (column 5,

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line 2), which is not below atmospheric pressure, as in claim 21. Kumar et al. teach or suggest pressure and time within the ranges of claim 25 at column 4, lines 43-67 and it is well known to heat to increase crystallinity, as in claim 28, and such would have been obvious to one of ordinary skill in the art practicing the process of Kumar et al. in order to stabilize the article in a desired form. Kumar et al. also teach the foaming steps of claim 12, and when all virgin material is used, there would be no need for a recycle or closed loop process, which would have been obvious to one of ordinary skill in the art.

8.Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar et al. in view of Grancio et al. as applied to claims 12, 15-21, 25 and 28 above, and further in view of Kumar (5,223,545). Kumar notes at column 1, lines 61 to column 2, line 2 that an effect of exposure of polymer to carbon dioxide is the formation of an integral skin against the foam. Given this teaching of Kumar, one of ordinary skill in the art would have expected at least some of the portions of the article of Kumar et al. to be unfoamed at the integral skin portions.

9.Claims 1, 2, 5-7, 9-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar et al. in view of Grancio et al. as applied to claims 12, 15-21, 25 and 28 above, and further in view of Lake (4,304,747). Lake discloses the aspect of trimming a foam material. It would have been obvious to one of ordinary skill in the art to incorporate this aspect taught by Lake into the method of Kumar et al. in order to refine the shape of the edges of the article.

It is submitted that statements above concerning claim 28 are also applicable to claims 9-11. Grancio et al. at least suggest reprocessing all available scrap, as in claim

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7. Kumar et al. teach or suggest temperature levels, as in claims 5 and 6, and it is submitted that some gas desorption, as in claim 13, is inherent in the method of Kumar et al.

10. Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar et al. in view of Grancio et al. and Kumar as applied to claim 26 above, and further in view of Lake. The relevant teachings of Lake are as set forth previously. Kumar teaches the aspect of exposing thermoplastic raw material to gas pressure to increase crystallinity, as in claim 3, and suggests that foaming occurs at the core, but not at the surface (where an integral skin is formed), as in claim 8.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Kuhns whose telephone number is (571) 272-1202. The examiner can normally be reached on Monday to Thursday from 7:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson, can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Allan R. Kuhns*

ALLAN R. KUHNS  
PRIMARY EXAMINER AU 1732  
10-24-06